## Claims

- [c1] 1. A phase adjusting method of an analog-to-digital (A/D) video signal conversion, which comprises setting a phase reference; applying the phase reference to convert a first analog video frame to a first digital video frame and collecting a first set of pixel value of a plurality of predetermined positions from the first digital video frame; applying the phase reference to convert a second analog video frame to a second digital video frame and collecting a second set of pixel value of said plurality of predetermined positions from the second digital video frame; calculating an absolute display difference by adding up absolute differences between corresponding pixels in the first set and the second set of pixel value; obtaining another phase reference and doing the above procedures over again to obtain another absolute display difference, choosing a target phase reference that produces a smallest absolute display reference; and applying said target phase reference to convert a following analog video frame.
- [c2] 2. The phase adjusting method of claim 1, wherein said

plurality of predetermined positions are at four corners and a center of the digital video frame.

- [c3] 3. The phase adjusting method of claim 1, wherein the first video frame and the second video frame are consecutive frames.
- [c4] 4. The phase adjusting method of claim 1, wherein before obtaining the first digital video frame and the second digital video frame, a delay occurs for storing the first digital video frame and the second digital video frame to a frame buffer memory.
- [05] 5. The phase adjusting method of claim 1, wherein a moving average calculating method is applied to the absolute display differences to obtain a plurality of moving averages.
- [c6] 6. The phase adjusting method of claim 5, wherein a best phase reference for the A/D conversion produces a smallest moving average.
- [c7] 7. A phase adjusting method of an analog-to-digital (A/D) video signal conversion, which comprises obtaining a plurality of digital video frames of the A/D conversion by setting a phase reference that is a member of a set of phase references; calculating an absolute display difference by adding up

absolute differences between pixel value for corresponding pixel positions in the plurality of digital video frames;

picking up another phase reference from the set of phase references and repeating the above procedures; and

choosing a target phase reference that produces a smallest absolute display difference to convert a following analog video frame.

- [c8] 8. The phase adjusting method of claim 7, wherein said corresponding pixel positions are at four corners and a center of the frames.
- [09] 9. The phase adjusting method of claim 7, wherein the plurality of digital video frames are consecutive frames.
- [c10] 10. The phase adjusting method of claim 7, wherein before obtaining the plurality of digital video frames, a delay occurs for storing the plurality of digital video frames to a frame buffer memory.
- [c11] 11. The phase adjusting method of claim 7, wherein a moving average calculating method is applied to the absolute display differences to obtain a plurality of moving averages.
- [c12] 12. The phase adjusting method of claim 11, wherein a

best phase reference for the A/D conversion produces a smallest moving average, and the best phase reference is used in a follow-up A/D conversion.